



FA-240 RANGE LIGHT

The rugged FA-240 Range Light meets all the requirements of a unidirectional modern aid to navigation. It produces a high intensity light in a relatively narrow beam from low wattage.

Features

- **ECONOMICAL:** Short-filament 6 or 12 volt lamps give high beam candlepower from low wattage. A four or six place automatic lampchanger eliminates the need for duplexing.
- **FLEXIBLE:** Lightweight and compact construction, rifle type aiming sights, and leveling and aligning adjustments in the base simplify installation. A flat pad on top of the housing provides a convenient position for a circular spirit level. All components are easily accessible when the back cover is removed from the housing.
- **EASY TO INSTALL AND SERVICE:** The FA-240 Range Light is available with solid-state flashers for any flash characteristic, and with either four or six place lampchangers. Space is provided in the housing for a sun switch. There is also space in the base for a transformer if AC input is desired.
- **SELECTION OF LENS AND LAMPS:** Both "Flatlite" and "Spredlite" lenses of red, green, yellow or clear are available. A flat lens gives a very narrow beam of high candlepower, while spredlite lenses give a higher divergence to the beam. The degree of divergence selected will depend on the points at either side of the channel from which approaching vessels should first see the lights distinctly. Lamp sizes are available to give the desired range of visibility, taking into consideration the color of the lens and normal atmospheric conditions.



A two station range makes it possible for the mariner to navigate the center of a restricted channel. The lights of each station, front and rear, are aligned when the ship is on the channel's centerline. The lights separate when the ship drifts to either side. This feature gives the pilot a "feel" for his position off the range since he can tell the direction and degree of drift. Course correction can be evaluated immediately by whether the lights begin to "close" or continue to "open."

However, with a single station polychrome range, the pilot knows only if he is in the center of the channel or to one side or the other. There is no indication of degree of navigation error. Also, he's unable to determine if the ship's position is improving or worsening.

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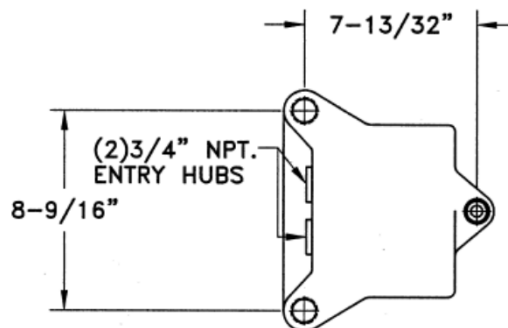
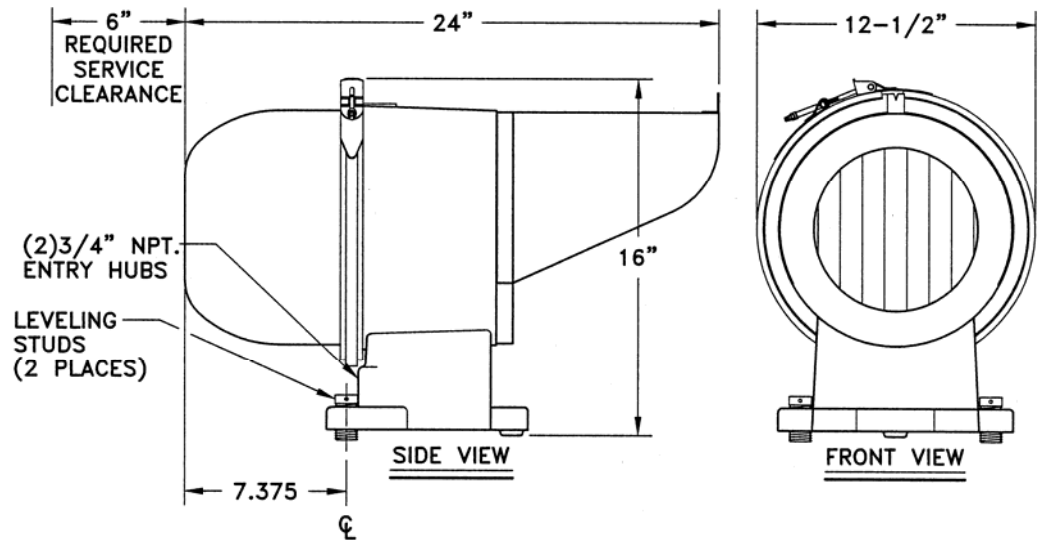
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SPECIFICATIONS

Dimensions:	406.4 mm x 317.5 mm x 609.6 mm (16" x 12.5" x 24")
Weight:	12.7 kg (28 lbs.)
Shipping Weight:	20 kg (44 lbs.)
Shipping Carton:	457.2 mm x 406.4 mm x 685.8 mm (18" x 16" x 27")
Input Voltage:	12 or 24 VDC or 120/240 VAC
Lens Type:	Flatlite, 3.5°, 8°, or 30° Spredlite
Available Colors:	White, Green, Red, Amber
Lantern Housing:	Painted Anodized Aluminum
Lamps:	Pre-focused 12 Volt, C-8 or CC-8 Filament and S-8 or S-11 Envelope
Operating Temperature:	-20°C to +40°C

*Specifications subject to change without notice.



ADDITIONAL INFORMATION

PERFORMANCE

LAMP			FIXED INTENSITIES (Candela)			
Filament	Volts	Amperes	Flatlite*	3.5° Spredlite*	8° Spredlite*	30° Spredlite*
C-8	12.0	0.25	7,900	2,700	1,400	410
C-8	12.0	0.55	20,000	7,200	3,100	900
C-8	12.0	0.77	30,000	10,000	4,400	1,300
C-8	12.0	1.15	57,000	16,000	7,900	2,300
C-8	12.0	2.03	80,000	28,000	15,000	4,500
C-8	12.0	3.05	115,000	42,000	24,000	6,800
*C-8	12.0	9.00	365,000	170,000	95,000	24,000
CC-8	12.0	0.50	38,000	13,000	6,900	2,000
CC-8	12.0	1.00	72,000	25,000	13,000	3,800
CC-8	12.0	2.00	157,000	54,000	28,000	8,200
CC-8	12.0	3.00	195,000	67,000	35,000	10,000

*High wattage lampchanger required. Duty cycle above 50% requires ventilating lantern.

For colored lens: Multiply above by 0.30 for red, 0.32 for green, 0.80 for yellow.

Spredlite lens spread is total beam width to 50% intensity.

For example: the 8° lens with the 12v 0.77 amp lamp is 2200 cd at ± 4° from the center.

RANGE DESIGN DATA

Range lights are uni-directional, relatively narrow beam lights installed in pairs on extensions of the channel center line. They are generally placed on shore. The rear light is higher and behind the front light. A navigator keeps the lights vertically aligned to follow center line of the channel.

Primary considerations in designing a range light installation are:

1. The maximum distance from which the front and rear lights must appear as two distinct and separate sources. The rear range light should be high enough above the front light so that the two lights do not blend.
2. The navigable width of the channel (See W in formula). This determines:
 - a. The minimum distance between the lights in order to provide sufficient sensitivity to keep the navigator within the confines of the channel. (See R in formula)
 - b. The maximum distance between the lights beyond which the sensitivity would be so great as to cause the navigator to fear "opening up" or using those portions of the channel near the edge. (See R in formula)
3. The "sensitivity" of the range.
4. The candlepower required for adequate visibility.

The sensitivity (K) of the range is determined by the formula:

$$K = WR/D(H-h)$$

Where:

K = Coefficient of sensitivity

W = Width of channel (ft.)

R = Distance between front and rear lights (ft.)

D = Distance from front light to limit of useful range (ft.)

H = Elevation of rear light above mean high water (ft.)

h = Elevation of front light above mean high water (ft.)

Values of K	Description of Sensitivity
Under 0.6	Not Acceptable
0.6 to 1.0	Poor
1.0 to 1.5	Fair
1.5 to 2.5	Good
2.5 to 3.5	Very Good
3.5 to 4.5	Excellent

